

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0022381

Owner: City of Mount Vernon
Address: 319 East Dallas, Mount Vernon, MO 65712

Continuing Authority: Same as above
Address: Same as above

Facility Name: Mount Vernon Wastewater Treatment Facility
Facility Address: North Highway 39, Mount Vernon, MO 65712

Legal Description: NW ¼, SE ¼, Sec. 25, T28N, R27W, Lawrence County

Receiving Stream: Williams Creek (P)
First Classified Stream and ID: Williams Creek 2 (P)(03172)
USGS Basin & Sub-watershed No.: (11070207-010003)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

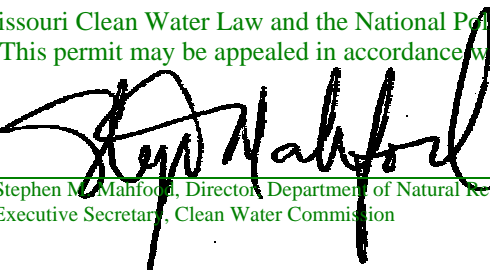
FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

May 17, 2002
Effective Date

May 16, 2007
Expiration Date
MO 780-0041 (10-93)


Stephen M. Mahford, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall #001 - POTW - SIC #4952

Oxidation ditch/clarifier/sand filtration/chlorination/dechlorination.

Design population equivalent is 19,870.

Design flow is 1.35 MGD.

Actual flow is 0.725 MGD.

Design sludge production is 401 dry tons/year.

Actual sludge production is 120 dry tons/year.

Outfall #002 - POTW - SIC #4952

Stormwater clarifiers.

Design flow is 2 MGD.

Outfall #003 - POTW - SIC #4952

Stormwater basin.

Flow is dependent upon precipitation.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 10	
					PERMIT NUMBER MO-0022381	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅ **	mg/L		10	10	once/week	24 hr. comp.
Total Suspended Solids**	mg/L		45	30	once/week	24 hr. comp.
Oil & Grease	mg/L	15		10	once/week	grab
pH - Units	SU	***		****	once/week	grab
Fecal Coliform****	#/100 mL	1000		400	once/week	grab
Chlorine, Total Residual (Note 1)	mg/L	0.01		0.01	once/week	grab
Ammonia as N (May 15 - October 15)	mg/L	2		2	once/week	grab
(October 16 - May 14)		3		3	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2002</u> .						
Whole Effluent Toxicity (WET) Test	% Survival	(See Special Condition #4)			once/year	24 hr. comp.
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2002</u> .						
<u>Effluent Monitoring</u>						
Cadmium, Total Recoverable	mg/L	0.018		0.018	once/quarter*****	grab
Chromium, Total Recoverable	mg/L	0.042		0.042	once/quarter*****	grab
Copper Total Recoverable	mg/L	0.029		0.029	once/quarter*****	grab
Nickel, Total Recoverable	mg/L	0.50		0.50	once/quarter*****	grab
Zinc, Total Recoverable	mg/L	0.345		0.345	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2002</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 10	
					PERMIT NUMBER MO-0022381	
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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u>						
Flow	MGD	*		*	once/discharge event	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		45		once/discharge event	24 hr. composite
Total Suspended Solids	mg/L		45		once/discharge event	24 hr. composite
pH - Units	SU	***		***	once/discharge event	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2002</u> .						
<u>Effluent Monitoring</u>						
Cadmium, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Chromium, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Copper, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Nickel, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Zinc, Total Recoverable	mg/L	*		*	once/quarter*****	grab
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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 10	
					PERMIT NUMBER MO-0022381	
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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003</u>						
Flow	MGD	*		*	once/discharge event	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		45		once/discharge event	grab
Total Suspended Solids	mg/L		45		once/discharge event	grab
pH - Units	SU	***		***	once/discharge event	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2002</u> .						
<u>Influent and Effluent Monitoring</u>						
Cadmium, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Chromium, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Copper, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Nickel, Total Recoverable	mg/L	*		*	once/quarter*****	grab
Zinc, Total Recoverable	mg/L	*		*	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2002</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** This facility is required to meet a removal efficiency of 85% or more.
- *** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
- **** Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31. Chlorine limit applies only when chlorine is used as a disinfectant.
- ***** Sample once per quarter in the months of January, April, July, and October.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - This permit contains a Total Residual Chlorine (TRC) limit.

- a. If the TRC limit in this permit is 0.01 mg/L or 0.2 mg/L, you must use an analytical method that has a quantification limit of no greater than 0.05 mg/L TRC. For reporting purposes on the discharge monitoring report (DMR), all analytical values below 0.05 mg/L shall be reported as "<quantlim." All analytical values at or above the quantification limit of 0.05 mg/L shall be reported as the measured value. The permittee shall report the quantification limit in the remarks section of the DMR.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

- b. If the TRC limit in this permit is 1.0 mg/L; you must use an analytical method with a quantification limit between 0.2 and 0.5 mg/L. All analytical values below the quantification limit shall be reported as "<quantlim." All analytical values at or above the quantification limit shall be reported as the measured value.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

- c. Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- d. Do not chemically dechlorinate if it is not needed to meet the limits in your permit.
- e. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. SPECIAL CONDITIONS

1. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
Outfall #001	100%	Annually	24 hr. composite	November

a. Test Schedule and Follow-Up Requirements

- (1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit a multiple-dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

- (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until the next regularly scheduled test period.
- (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (2) The permittee shall submit a summary of all tests results for the test series to the Planning Section of the WPCP, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b. (1) will be required during this period.
- (5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of results.
- (6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

C. SPECIAL CONDITIONS (continued)

1. Whole Effluent Toxicity (WET) tests (continued)

b. PASS/FAIL procedure and effluent limitations

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
- (2) To pass a multiple-dilution test:
 - (a) the computed percent of effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,
 - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

- (1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.
- (2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).
- (4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.
- (5) Single-dilution tests will be run with:
 - (a) Effluent at the AEC concentration;
 - (c) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (d) reconstituted water.
- (6) Multiple-dilution tests will be run with:
 - (a) 100 %, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two time the AEC, AEC, $\frac{1}{2}$ the AEC, and $\frac{1}{4}$ the AEC.
 - (b) 100 % receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

C. SPECIAL CONDITIONS (continued)

2. The pretreatment program shall be reactivated if the city so requests or if the department determines that it is necessary. Upon reactivation, the permit will be reopened and pretreatment implementation requirements will be reinserted.
3. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

4. All outfalls must be clearly marked in the field.
5. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.
6. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (b) One hundred micrograms per liter (100 µg/L);
 - (c) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (d) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (e) The level established in Part A of the permit by the Director.
 - (f) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
7. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

8. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (e) There shall be no significant human health hazard from incidental contact with the water;
 - (f) There shall be no acute toxicity to livestock or wildlife watering;
 - (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
9. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
 - (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
 - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids that are removed from the domestic wastewater treatment lagoon during lagoon clean-out and maintenance activities. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.
10. All infiltration/inflow reports shall be submitted twice per year in January and July.

WATER QUALITY STANDARDS REVIEW SHEET

FACILITY: Mt. Vernon STP

NPDES# MO-0022381

DESIGN FLOW: 001 - trickling filter - 1.35 MGD
002 - stormwater clarifiers - 2 MGD

RECEIVING STREAM: Williams Creek

STREAM CLASS: P (Permanent Flow)

STREAM BENEFICIAL USES: Aquatic-life protection (general warm-water fishery) (cold-water fishery for one mile above stream mouth); livestock, wildlife watering; whole-body-contact recreation.

7Q10 LOW STREAM FLOW: estimated as 0.9 cfs

STREAM IMPACTS: Stream impacts were noted previous to upgrading to meet currently required limits. Recent physical-chemical surveys in 1994 and 1995 have indicated high quality effluent and no stream impacts.

OUTFALL 001: Final conventional pollutant limits in effect in the current permit, as developed in a wasteload allocation study (Analysis of Wastewater Treatment Needs at Mt. Vernon, MO), are acceptable.

BOD - 10 mg/L (weekly average and monthly ave)
TSS - 30/45 mg/L (monthly ave/weekly ave)
NH3N - May 15 - October 15 - 2 mg/L (daily maximum)
October 16 - May 14 - 3 mg/L (daily maximum)

Disinfection and dechlorination are required.

For the metals currently monitored, if past monitoring has indicated values exceeding 50% of the following criteria, there is considered to be reasonable potential for water-quality standards' violations, and the following values should be established as permit limits:

Cd - 18 ug/L
Cr - 42 ug/L
Cu - 29 ug/L
Ni - 500 ug/L
Zn - 345 ug/L

WEST TEST: A 1994 WET test did not indicate toxicity. An annual WET test with an "acceptable effluent concentration" of 100% effluent, as is currently required, should be continued.

OUTFALLS 002 & 003: Current maximum limits for noncontinuous discharges of "45/45" mg/L for BOD and TSS are acceptable. Metals' monitoring should be continued.

REVIEWER: RG DATE: 10-31-96 (Updated 11-27-96)
SECTION CHIEF: JM